DOCUMENT NO. 451
June, 1962

OPERATION INSTRUCTIONS

V35RB

DIGITAL VOLTMETER

This document is complete when accompanied by:

V35B Instruction Manual
NLS Drawings:

11440-500 Sheet 2	E Board, V34RB/V35RB
11440-550 Sheet 2	F Board, V34RB/V35RB
11440-700 Sheet 2	Assembly, Decade Switch

NON-LINEAR SYSTEMS, INC.

Del Mar, California

NON-LINEAR SYSTEMS, INC.

DEL MAR AIRPORT
DEL MAR, CALIFORNIA

APPROVED BY: R. Hoelscher / A. Christian / J. Block	OPERATION INSTRUCTIONS	DOCUMENT NUMBER 451	REVISION
		PREPARED BY: A. Christian	DATE
	V35RB	CHECKED BY: J. Block	DATE
	DIGITAL VOLTMETER	RELEASE DATE 6-12-62	PAGE 1 OF 1

The NLS Reed Relay Digital Voltmeter, Model V35RB, is very similar to its oil-bath stepping-switch counterpart, Model V35B.

The essential differences between the two are as follows:

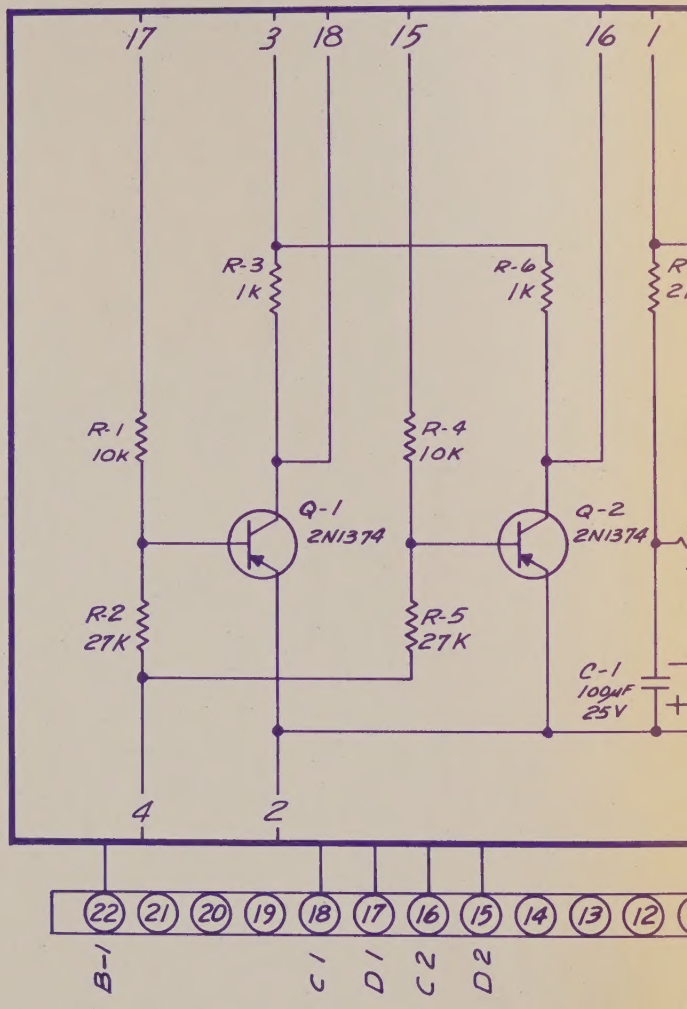
1. The V35RB instrument uses reed relays instead of conventional oil-bath stepping switches to perform computing, readout and printout functions.

NOTE:

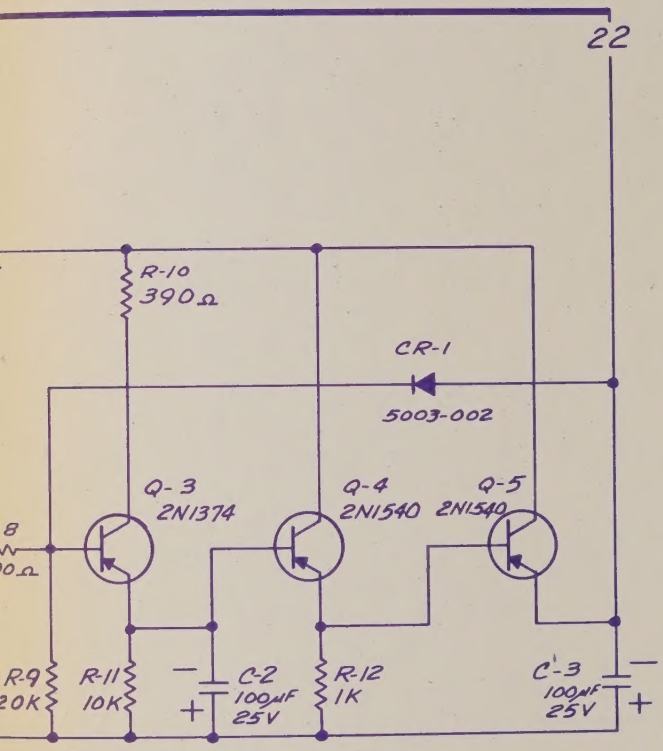
For operating external equipment such as data printers, readout information is applied in the "voltage level" form to the printout connector. This connector has the same pin designations as the V35B instrument, except that all decade commons are at ground potential. In the V35RB Model, zero volts represents "ON" and -12 volts represents "OFF". Up to 100 ma. may be switched to zero volts and up to 5 ma. may be switched to -12 volts. When switching this 5 ma. to the -12 volts, keep in mind that the return is through the readout lamps.

2. Disregard references in the manual to the two "D" boards which are used to drive the stepping switches. Instead, "E" and "F" boards are provided. These "E" and "F" boards supply signals to the appropriate reed-relay decade, where a counter matrix and buffer convert the signals into pulses which drive the reed relays.

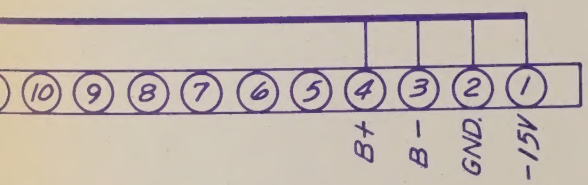
Drawings 11440-500 and 11440-550 show the circuitry of the "E" and "F" boards.


17
3
18
15
16
1
R-3
1K
R-6
1K
R-1
10K
R-4
10K
Q-1
2N1374
Q-2
2N1374
R-2
27K
R-5
27K
C-1
100μF
25V
4
2
22
21
20
19
18
17
16
15
14
13
12
B-1
C1
D1
C2
D2

REVISIONS				
SYM.	EFFECT.	DESCRIPTION	DATE	APPROVAL



11440-500
SHEET 2



NEXT ASSY	USED ON	NEXT ASSY	FINAL ASSY
APPLICATION		QTY REQD	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTION ± DECIMAL ± ANGLES ± MATERIAL	DRAWN BY R. COLLETTA DATE 2-9-67 CHECKED BY DATE APPROVED BY R. Hartsell DATE 3-6-67 FINISH	TITLE SCHEMATIC "E" BOARD V34RB / V35RB SCALE WT.

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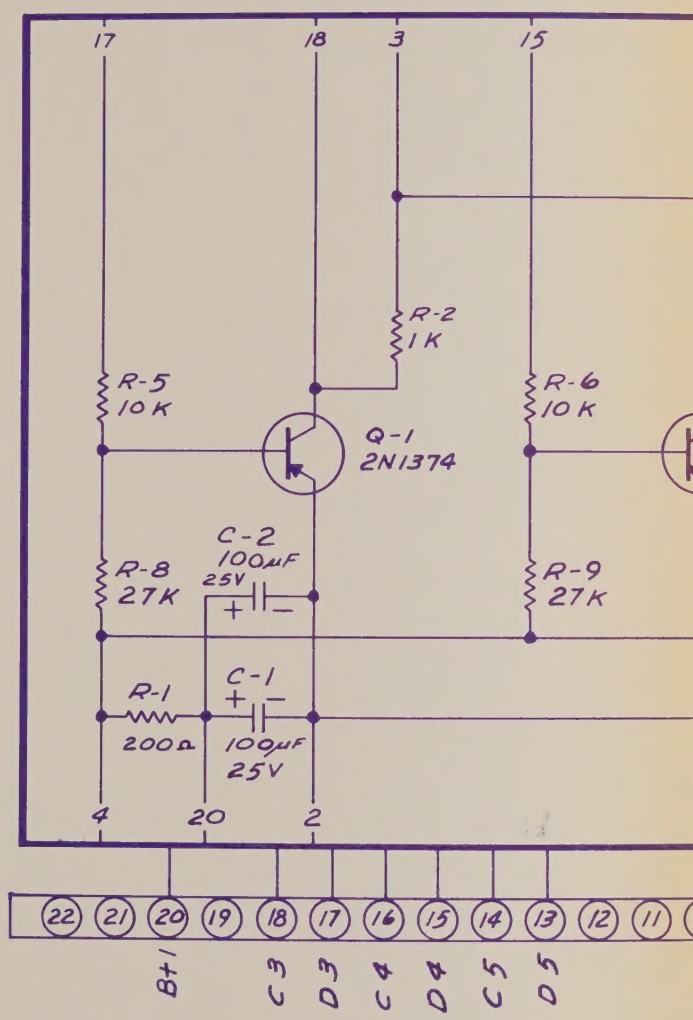
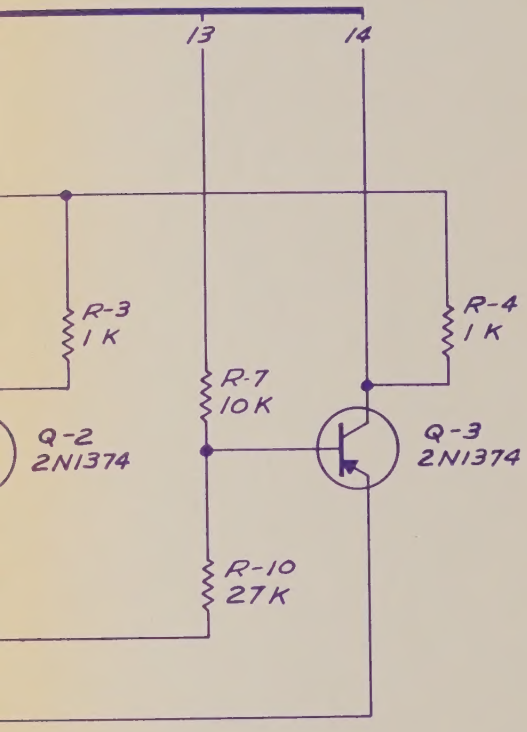
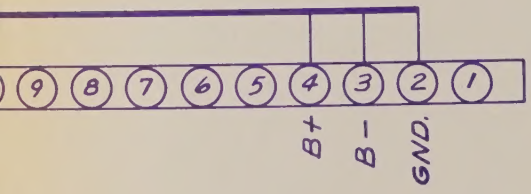
DRAWING NUMBER 11440-500

SHEET 2 OF


17
18
3
15
R-2
1K
R-5
10K
R-6
10K
Q-1
2N1374
C-2
100μF
25V
R-8
27K
R-9
27K
R-1
200Ω
C-1
100μF
25V
4
20
2
22
21
20
19
18
17
16
15
14
13
12
11
B+1
C3
D3
C4
D4
C5
D5

REVISIONS				
SYM.	EFFECT.	DESCRIPTION	DATE	APPROVAL





11440-550
SHEET 2

NEXT ASSY	USED ON	NEXT ASSY	FINAL ASSY
APPLICATION		QTY REQD	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTION ± DECIMAL ± ANGLES ± MATERIAL	DRAWN BY R COLLETTA CHECKED BY APPROVED BY D. Hedrick FINISH	DATE 2-9-62 DATE DATE 2-9-62	TITLE SCHEMATIC "F" BOARD V34RB/V35RB SCALE WT.

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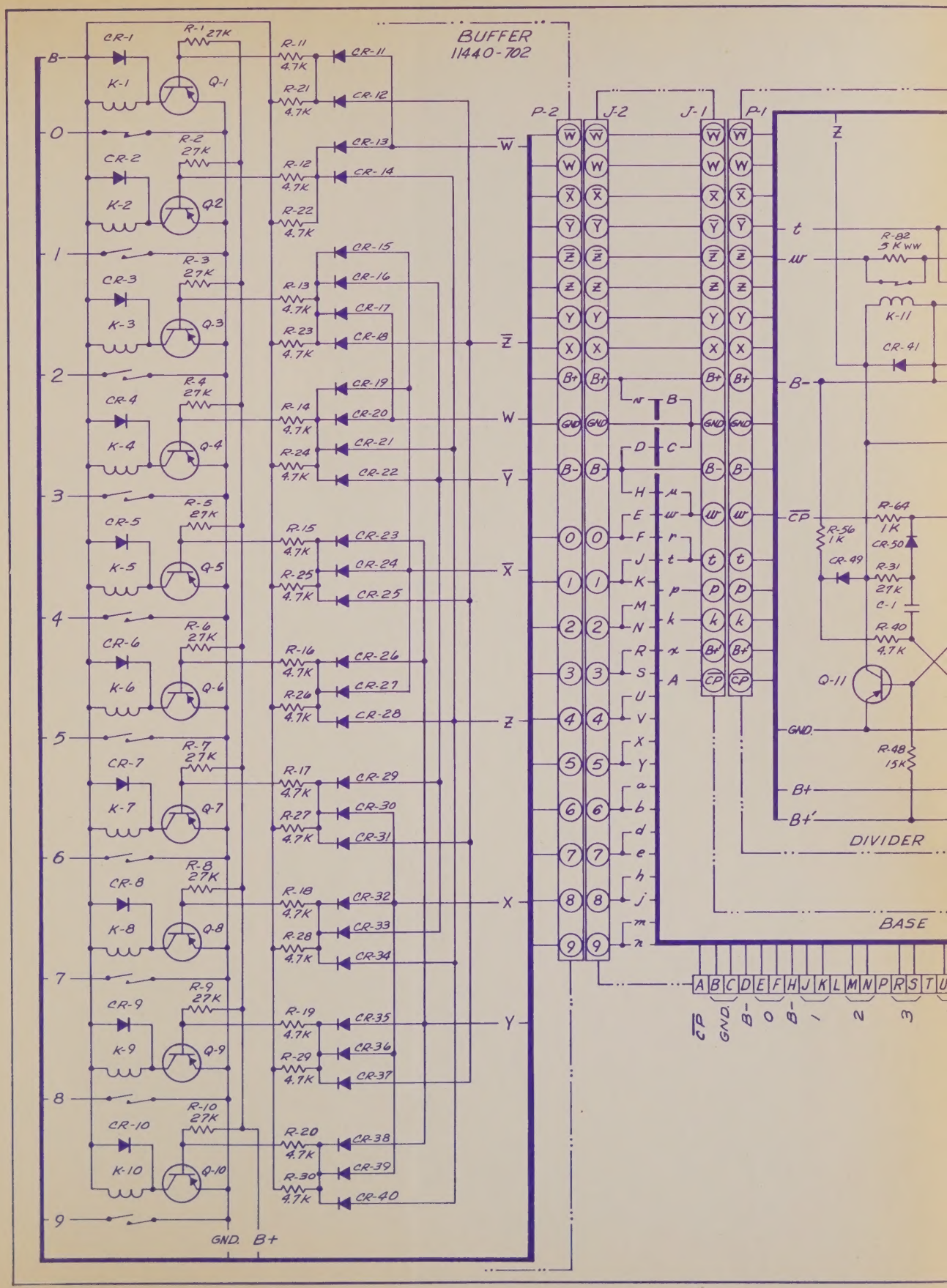
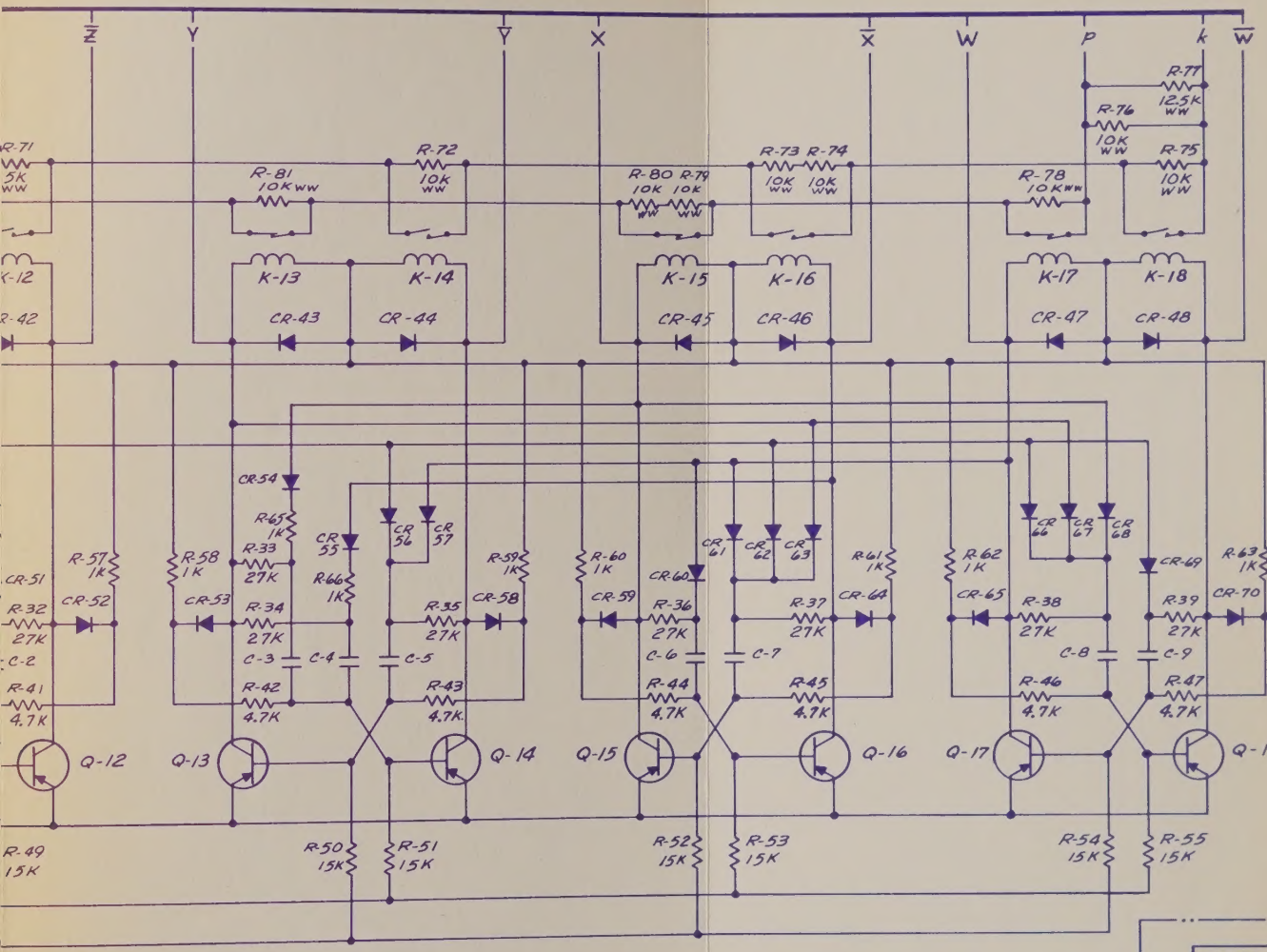
DRAWING NUMBER 11440-550
SHEET 2 OF


BUFFER
11440-702
P-2
J-2
J-1
P-1
B-
0
1
2
3
4
5
6
7
8
9
K-1
K-2
K-3
K-4
K-5
K-6
K-7
K-8
K-9
K-10
Q-1
Q-2
Q-3
Q-4
Q-5
Q-6
Q-7
Q-8
Q-9
Q-10
R-1 27K
R-2 27K
R-3 27K
R-4 27K
R-5 27K
R-6 27K
R-7 27K
R-8 27K
R-9 27K
R-10 27K
R-11 4.7K
R-21 4.7K
R-12 4.7K
R-22 4.7K
R-13 4.7K
R-23 4.7K
R-14 4.7K
R-24 4.7K
R-15 4.7K
R-25 4.7K
R-16 4.7K
R-26 4.7K
R-17 4.7K
R-27 4.7K
R-18 4.7K
R-28 4.7K
R-19 4.7K
R-29 4.7K
R-20 4.7K
R-30 4.7K
CR-1
CR-2
CR-3
CR-4
CR-5
CR-6
CR-7
CR-8
CR-9
CR-10
CR-11
CR-12
CR-13
CR-14
CR-15
CR-16
CR-17
CR-18
CR-19
CR-20
CR-21
CR-22
CR-23
CR-24
CR-25
CR-26
CR-27
CR-28
CR-29
CR-30
CR-31
CR-32
CR-33
CR-34
CR-35
CR-36
CR-37
CR-38
CR-39
CR-40
GND.
B+
W
Z
Y
X
Z
DIVIDER
BASE
R-82 5 K WW
K-11
CR-41
R-64 1K
CR-50
R-56 1K
CR-49
R-31 27K
C-1
R-40 4.7K
Q-11
R-48 15K
B+'
A B C D E F H J K L M N P R S T U
GND.
B-
0
1
2
3

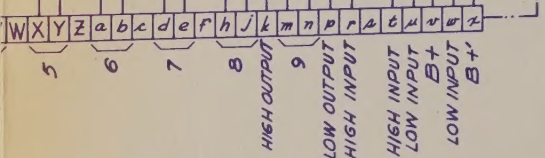
REVISIONS				
SYM.	EFFECT.	DESCRIPTION	DATE	APPROVAL



11440-701

11440-700 SHEET 2

11440-703



4. RELAY CLOSURES ARE SHOWN FOR "0" DIGIT CONDITION.
3. ALL CAPACITORS ARE .02 μF.
2. ALL DIODES ARE NLS TYPE 5003-002
1. ALL TRANSISTORS ARE TYPE 2N1374

NOTES: UNLESS OTHERWISE SPECIFIED -

NEXT ASSY	USED ON	NEXT ASSY	FINAL ASSY
APPLICATION		QTY REQD	

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON FRACTION ± DECIMAL ± ANGLES ±	DRAWN BY R. COLLETTA	DATE 2-8-62	TITLE - SCHEMATIC - DECADE SWITCH
	CHECKED BY	DATE	
	APPROVED BY N. Nachman	DATE 2-6-62	
MATERIAL	FINISH		V34RB / V35RB
			SCALE / WT.

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DRAWING NUMBER 11440-700

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